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EXAMINER	
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ART UNIT	PAPER NUMBER
3771	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/724,294	ROBERT, RAYMOND	
	Examiner	Art Unit	
	Shumaya B. Ali	3771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,12-24 and 31-35* is/are rejected.

7)☒ Claim(s) *9-11,25-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/25/05*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to because boxes in figure 1 should be labeled. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Note, the abstract of instant application is more than 150 words.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8, line 2, "ramp profiles" is indefinite. It is not clear what is considered ramp profiles.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Federowicz US 6,694,977 B1.

As to claim 1, Federowicz discloses a method of applying total liquid ventilation to a patient according to a ventilation cycle including inspiration and expiration profiles, comprising: supplying oxygenated liquid to the lungs of the patient during inspiration (col.15, lines 55 and 56, col.13, lines 3-15); withdrawing (col.15, lines 55 and 56 and col.13, lines 17-31) liquid from the patient's lungs during expiration; and controlling independently (col.11, lines 11 and 12) supply of oxygenated liquid to the patient's lungs and withdrawal of liquid from the patient's lungs, the supply and withdrawal independent control comprising producing a ventilation cycle having independently (col.11, lines 11 and 12) controlled inspiration and expiration profiles.

As to claim 2, Federowicz discloses oxygenating the liquid withdrawn from the patient's lungs through an oxygenator unit; and supplying oxygenated liquid to the patient's lungs comprises supplying to the patient's lungs oxygenated liquid from the oxygenator unit (col.15, lines 45-46).

As to claim 12, Federowicz discloses PFC liquid (col.6, lines 42-56).

As to claim 13, Federowicz's valves (see fig.6A) allows volume of liquid withdrawn from the patient's lungs during inspiration, the volume of liquid withdrawn form the patient's lungs during expiration, the inspiration profile, the expiration profile, and the expiration time (see col.7, liens 30-35, col.8, liens 10-15, and 37).

Claims 14 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Parker 5,606,830.

As to claim 14, Parker (in fig.1) discloses a system for applying total liquid ventilation to a patient according to a ventilation cycle including inspiration and expiration profiles, comprising: an inspiration pump (40) for supplying oxygenated liquid to the lungs of the patient; an expiration pump (48) for withdrawing liquid from the patient's lungs; and a ventilation cycle control means comprising first and second pump controllers (52) connected to the inspiration and expiration pumps, respectively, to control independently said inspiration and expiration pumps in order to produce a ventilation cycle having independently controlled inspiration and expiration profiles.

As to claim 31, Parker discloses wherein the liquid comprises PFC liquid (col.2, line 50).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Federowicz et al US 6,694,977 in view of Parker US 5,706,830.

As to claim 3, Federowicz discloses supplying oxygenated liquid to the patient's lungs comprises accumulating oxygenated liquid from the oxygenator unit in an inspiration piston pump (col.12, line 50), and transferring the oxygenated liquid accumulated in the inspiration piston pump to the patient's lungs; and withdrawing liquid from the patient's lungs comprises accumulating liquid from the patient's lungs in an expiration piston pump (col.12, line 50). Federowicz however lacks transferring the liquid accumulated in the expiration piston pump to the oxygenator unit. However, Parker teaches transferring liquid from expiration pump (fig.1, 48) to the oxygenator (fig.1, 3). Therefore, the method step of transferring liquid would have been obvious using the pump of Parker.

As to claim 4, Parker teaches a control system (fig.1, 52), which would allow extending a time of residence of the liquid in the oxygenator unit by transferring the liquid accumulated in the expiration piston pump to the oxygenator unit more readily than the oxygenated liquid accumulated in the inspiration piston pump is transferred to the patient's lungs.

As to claim 5, the valves (see fig.6A) of Federowicz can be control by the controller of Parker to produce a pause between transfer of the oxygenated liquid accumulated in the inspiration piston pump to the patient's lungs and transfer of the liquid accumulated in the expiration piston pump to the oxygenator unit. The valves and the controller can be adjusted to

accumulate oxygenated liquid from the oxygenator unit in the inspiration piston pump and accumulation of liquid from the patient's lungs in the expiration piston pump.

As to claim 6, Parker teaches a control system (fig.1, 52) that can be adjusted to produce pause between accumulation of oxygenated liquid form the oxygenator unit in the inspiration piston pump and accumulation of liquid from the patient's lungs in the expiration piston pump, and transfer of the oxygenated liquid accumulated in the inspiration piston pump to the patient's lungs and transfer of the liquid accumulated in the expiration piston pump to the oxygenator unit.

As to claim 7, Parkers control system is capable of being adjusted to provide the method step of starting accumulation of liquid from the patient's lungs in the expiration piston pump before accumulation of oxygenated liquid from the oxygenator unit in the inspiration piston pump; and simultaneously ending accumulation of oxygenated liquid from the oxygenator unit in the inspiration piston pump, and accumulation of liquid from the patient's lungs in the expiration piston pump.

As to claim 8, Federowicz's teaching of loading of fluid during inspiration and unloading of fluid during expiration (see col.13, lines 2-31) is considered ramp profiles.

Claims 15,16, and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Parker US 5,706,830 in view of Federowicz et al US 6,694,977.

As to claim 15, Parker discloses at least one oxygenator (30) of the liquid withdrawn from the patient's lungs through the expiration pump.

As to claim 16, Parker discloses first conduit means (34) for connecting the inspiration and expiration pumps to the patient's airways and second conduit means (28) for connecting the

inspiration and expiration pumps to said at least one oxygenator. Parker however lacks valves mounted on the first and second conduits, connected to the ventilation cycle control means, and controlled by said ventilation cycle control means. However, Federowicz teaches valves between conduit (see fig.6A, V1, V2, V3) to control the fluid between conduits. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Parker in order to add valves for the purposes of controlling fluid flow thought the conduit as taught by Federowicz.

As to claim 22, Federowicz teaches a filter unit (see box labeled filter in fig.6A) for filtering the liquid withdrawn from the patient's lungs before supplying it to the upper end of the inner cylindrical section of the oxygenator.

Claims 17,18,20,21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker and Federowicz and in view of Raibel US 5,770,149.

As to claim 17, Parker lacks the further limitation of an oxygenator. However Raibel (in figs. 1-3) teaches an oxygenator comprises: a lower perforated membrane (fig.3, 74) to supply oxygen to the liquid; an inner cylindrical section having an upper (28) end to which the liquid withdrawn from the patient's lungs is supplied; an outer annular section separated from the inner cylindrical section by a cylindrical partition and communicating with the inner cylindrical section through an annular passage between a lower end of the cylindrical partition and the perforated membrane (see fig.3); and an outlet (108) for supplying oxygenated liquid from the annular section, said outlet being positioned at a level that determines the level of liquid in the

oxygenator. Therefore, it would have been obvious to modify Parker in order to provide the structure of the oxygenator of claim 16 because it is known in the art as taught by Raibel.

As to claim 18, Raibel teaches the oxygenator is formed as a modular unit connectable to other similar oxygenator modular units; the system for applying total liquid ventilation comprises a plurality of said modular oxygenator units connected in series and/or parallel (col.2, lines 51-54).

As to claim 20, Raibel teaches the oxygenator is formed as a modular unit connectable (in parallel series, col.2, liens 51-54) to other similar oxygenator modular units; and each oxygenator modular unit comprises an integrated heating unit (12) for warming the liquid at a predetermined temperature.

As to claim 21, Raibel teaches the oxygenator comprises a lower tubular wall (26); and the heating unit comprises a heating element (12) wound around the lower tubular wall of the oxygenator.

As to claim 23, Raibel teaches a filter unit (122) being integrated to the oxygenator.

Claims 19, and 32-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker US 5,706,830 and Federowicz et al US 6,694,977 and in view of Rozenberg et al. US 2002/0153010 A1.

As to claim 19, Parker lacks piston pump. However, Rozenberg teaches liquid ventilation system using piston pump (see paragraph 49). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Parker in order to provide "piston" pump because it is known in the art as taught by Rozenberg.

As to claim 32, Parker discloses the first and second pump controllers comprise: means (52) for simultaneously starting transfer of the oxygenated liquid accumulated in the inspiration piston pump to the patient's lungs and transfer of the liquid accumulated in the expiration piston pump to the oxygenator unit; and means (52) for extending a time of residence of the liquid in the oxygenator unit by transferring the liquid accumulated in the expiration piston pump to the oxygenator unit more rapidly than the oxygenated liquid accumulated in the inspiration piston pump is transferred to the patient's lungs.

As to claim 33, Parker discloses wherein the first and second pump controllers comprise: means (52) for producing a pause between (a) transfer of the oxygenated liquid accumulated in the inspiration piston pump to the patient's lungs and transfer of the liquid accumulated in the expiration piston pump to the oxygenator unit, and (b) accumulation of oxygenated liquid from the oxygenator unit in the inspiration piston pump and accumulation of liquid from the patient's lungs in the expiration piston pump.

As to claim 34, Parker discloses wherein the first and second pump controllers comprise: means (52) for producing a pause between (a) accumulation of oxygenated liquid from the oxygenator unit in the inspiration piston pump and accumulation of liquid from the patient's lungs in the expiration piston pump, and (b) transfer of the oxygenated liquid accumulated in the inspiration piston pump to the patient's lungs and transfer of the liquid accumulated in the expiration piston pump to the oxygenator unit.

As to claim 35, Parker discloses means (52) for starting accumulation of liquid from the patient's lungs in the expiration piston pump before accumulation of oxygenated liquid from the oxygenator unit in the inspiration piston pump, and means (52) for simultaneously ending

accumulation of oxygenated liquid from the oxygenator unit in the inspiration piston pump, and accumulation of liquid from the patient's lungs in the expiration piston pump.

As to claim 36, the piston pump of Parker inherently comprises means for producing inspiration and expiration ramp profiles.

As to claim 37, Parker's controller (means for modifying) that allows volume of liquid withdrawn from the patient's lungs during inspiration, the volume of liquid withdrawn form the patient's lungs during expiration, the inspiration profile, the expiration profile, and the expiration time (see col.7, liens 30-35, col.8, liens 10-15, and 37).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parker US 5,706,830 and Federowicz et al US 6,694,977 in view of Kumar 6,983,749 B2.

As to claim 24, Parker lacks a condenser. However, Kumar teaches condenser in a liquid ventilating system for recovering liquid (see col.21, lines 53-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Parker in order to provide a condenser for the purposes of recovering liquid as taught by Kumar.

Allowable Subject Matter

Claims 9-11, and 25-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference cited in PTO form 890 that are not relied upon teaches lung ventilating device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shumaya B. Ali whose telephone number is 571-272-6088. The examiner can normally be reached on M-W-F 8:30am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

10/1/2007

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